

From: [TARNOW Karen E](#)
To: [TARNOW Karen E](#); [Carl Stivers](#); [Kristine Koch/R10/USEPA/US@EPA](#); [Andy Koulermos](#); [Amanda Shellenberger](#); [Amanda Spencer](#); [Sanders, Dawn](#); [Scheffler, Linda](#); [Laura Jones](#); [mcoover@ensr.aecom.com](#); [LaFranchise, Nicole](#)
Cc: [Bob Wyatt](#); [Rick Applegate](#); [MCCLINCY Matt](#); [Keith Pine](#); [Jim McKenna](#); [Jason Kase](#); [ANDERSON Jim M](#); [Eric Blischke/R10/USEPA/US@EPA](#)
Subject: Stormwater calculation methods
Date: 06/19/2008 04:17 PM
Attachments: [Stormwater June 5 Meeting Notes.doc](#)

Folks - I realize that my previous message (see below) made it sound like DEQ was good to go with the approach as proposed. Alas, that was premature. We're still digesting the document and may have additional comments/issues to discuss next week.

Karen

PS - Eric, per your request, my previous email and notes from Mike P are attached.

-----Original Message-----

From: TARNOW Karen E
Sent: Monday, June 16, 2008 3:01 PM
To: 'Carl Stivers'; Koch.Kristine@epamail.epa.gov; [Andy Koulermos](#); [Amanda Shellenberger](#); [Amanda Spencer](#); [Sanders, Dawn](#); [Scheffler, Linda](#); [Laura Jones](#); [mcoover@ensr.aecom.com](#); [LaFranchise, Nicole](#)
Cc: [Bob Wyatt](#); [Rick Applegate](#); [MCCLINCY Matt](#); [Keith Pine](#); [Jim McKenna](#); [Jason Kase](#); [ANDERSON Jim M](#); TARNOW Karen E
Subject: RE: Tomorrow's Stormwater Technical Team Meeting

I asked Mike Poulsen (who attended the 6/5 meeting) to review the meeting notes; please see his response in the attached email. He made a couple of minor edits/clarifications to meeting notes. With the changes agreed to in the meeting and reflected in the meeting notes, DEQ supports the proposed approach.

Karen

-----Original Message-----

From: Carl Stivers [<mailto:cstivers@anchorenv.com>]
Sent: Thursday, June 12, 2008 12:54 PM
To: TARNOW Karen E; Koch.Kristine@epamail.epa.gov; [Andy Koulermos](#); [Amanda Shellenberger](#); [Amanda Spencer](#); [Sanders, Dawn](#); [Scheffler, Linda](#); [Laura Jones](#); [mcoover@ensr.aecom.com](#); [LaFranchise, Nicole](#)
Cc: [Bob Wyatt](#); [Rick Applegate](#); [MCCLINCY Matt](#); [Keith Pine](#); [Jim McKenna](#); [Jason Kase](#); [ANDERSON Jim M](#)
Subject: RE: Tomorrow's Stormwater Technical Team Meeting

Karen –

Here are the notes from the call, which were sent to Chip and Eric yesterday.

Thanks.

Carl

Carl Stivers
Anchor Environmental, L.L.C.
23 South Wenatchee Avenue, Suite 120
Wenatchee, WA 98801

Phone: 509-888-2070
Fax: 509-888-2211

cstivers@anchorenv.com

This electronic message transmission contains information that is intended for the use of the individual or entity named above. If you are not the intended recipient, please be aware that any disclosure, copying distribution or use of the contents of this information is prohibited. If you have received this electronic transmission in error, please notify us by telephone at (206) 287-9130, or by electronic mail, cstivers@anchorenv.com.

From: TARNOW Karen E [mailto:TARNOW.Karen@deq.state.or.us]
Sent: Thursday, June 12, 2008 11:45 AM
To: Carl Stivers; Koch.Kristine@epamail.epa.gov; Andy Koulermos; Amanda Shellenberger; Amanda Spencer; Sanders, Dawn; Scheffler, Linda; Laura Jones; mcoover@ensr.aecom.com; LaFranchise, Nicole
Cc: Bob Wyatt; Rick Applegate; MCCLINCY Matt; Keith Pine; Jim McKenna; Jason Kase; TARNOW Karen E; ANDERSON Jim M
Subject: RE: Tomorrow's Stormwater Technical Team Meeting

Carl, Dawn and others

I was asked to get back to the group this week with any specific comments from DEQ on the following aspects of App. C:

- Land Use categories
- Delineation of drainage areas to each river segment
- Impervious Areas
- Unique Sites

Here are my comments on these topics plus a couple other comments.

We support the approach used to group land use categories and determine impervious areas.

As for delineating model segments and unique sites, I noted a few instances where there are discrepancies between the report's depiction of boundaries for model segments, unique sites or sampled subbasins and information DEQ has in hand. I paid most attention to non-LWG sites, assuming that LWG members will have or have had opportunity to review this information as it relates to them. The only discrepancy that will likely affect the City's GRID modeling effort comes from a drainage basin map recently submitted by NW Pipe. Their observations about drainage in the vicinity of their site may warrant a minor change in the model segment boundary near Burgard Rd in model segments 34 and 37. This map was circulated to the group a couple days ago and is also attached to this email.

At Cascade General, the depiction of the subbasin that LWG sampled does not seem to coincide with Cascade General's understanding of the area that drains to WR-161 (see attached map). While this discrepancy should not have any effect on GRID or hybrid modeling efforts, the LWG may want to consider revising their map to correct this.

I also attached a drainage basin map from GE that provides boundaries for the two drainage subbasins on that site, and the most recent submittal from Sulzer on their understanding of the drainage basin boundaries at their site. I have not examined the Sulzer map to determine whether it is the same as the depiction of the subbasin boundary in the LWG report.

The report should explicitly state that tax lot boundaries are used to delineate boundaries of unique sites. I came to this understanding after discussing the NW Pipe map with Dawn. Apparently, NW Pipe observed overland flow during a rain event and identified areas where overland flow from an adjacent site runs on to their property. They included this area in the drainage basin map of their site. However, it seems reasonable to use tax lot boundaries for this modeling exercise since many sites will have areas where stormwater could run onsite or offsite, and our approach does not allow for this level of detailed field analysis.

There is no mention about how runoff from St John's Bridge, or the Fremont for that matter, will be handled. Please clarify this in the report.

That's it for Appendix C. Carl, please shoot me your notes from last week's meeting when you get them finalized. Thanks

Karen

-----Original Message-----

From: Carl Stivers [mailto:cstivers@anchorenv.com]

Sent: Friday, June 06, 2008 9:33 AM

To: Koch.Kristine@epamail.epa.gov; Andy Koulermos; Amanda Shellenberger; Amanda Spencer; Sanders, Dawn; Scheffler, Linda; Laura Jones; mcoover@ensr.aecom.com; LaFranchise, Nicole; TARNOW Karen E

Cc: Bob Wyatt; Rick Applegate; MCCLINCY Matt; Keith Pine; Jim McKenna; Jason Kase

Subject: RE: Tomorrow's Stormwater Technical Team Meeting

Stormwater Technical Team –

Per yesterday's meeting, it was agreed that we would set a placeholder meeting/call time in case we need to meet to finalize any issues on the stormwater loading methods. We said the meeting/call time would be three weeks out, and it could be either a call or meeting depending on the level of issues raised between now and then. Also, if there are no or minor issues, we may not need the meeting/call at all. Please email this group over the next two weeks as you complete your reviews and identify any issues which you think require discussion. I can then help coordinate the need for the call/meeting.

So, for placeholder meeting/call date in the week of I suggest one of the following times:

Morning of 23rd (Monday)

Morning of 25th (Wednesday)

Morning of 26th (Thursday)

Please let me know what times work best for you, and I will send a confirmation email back out noting the selected time.

Thanks.

Carl

Carl Stivers

Anchor Environmental, L.L.C.

23 South Wenatchee Avenue, Suite 120

Wenatchee, WA 98801
Phone: 509-888-2070
Fax: 509-888-2211

cstivers@anchorenv.com

This electronic message transmission contains information that is intended for the use of the individual or entity named above. If you are not the intended recipient, please be aware that any disclosure, copying distribution or use of the contents of this information is prohibited. If you have received this electronic transmission in error, please notify us by telephone at (206) 287-9130, or by electronic mail, cstivers@anchorenv.com.

----- Message from "TARNOW Karen E" <TARNOW.Karen@deq.state.or.us> on Mon, 16 Jun 2008 15:00:49 -0700 -----

To: "Carl Stivers" <cstivers@anchorenv.com>, <Koch.Kristine@epamail.epa.gov>, "Andy Koulermos" <akoulermos@newfields.com>, "Amanda Shellenberger" <ashellenberger@anchorenv.com>, "Amanda Spencer" <aspencer@ashcreekassociates.com>, "Sanders, Dawn" <DAWNS@BES.CI.PORTLAND.OR.US>, "Scheffler, Linda" <LindaSC@BES.CI.PORTLAND.OR.US>, "Laura Jones" <ljones@integral-corp.com>, <mcoover@ensr.aecom.com>, "LaFranchise, Nicole" <Nicole.LaFranchise@portofportland.com>

Subject: RE: Tomorrow's Stormwater Technical Team Meeting

I asked Mike Poulsen (who attended the 6/5 meeting) to review the meeting notes; please see his response in the attached email. He made a couple of minor edits/clarifications to meeting notes. With the changes agreed to in the meeting and reflected in the meeting notes, DEQ supports the proposed approach.

Karen

-----Original Message-----

From: Carl Stivers [mailto:cstivers@anchorenv.com]

Sent: Thursday, June 12, 2008 12:54 PM

To: TARNOW Karen E; Koch.Kristine@epamail.epa.gov; Andy Koulermos; Amanda Shellenberger; Amanda Spencer; Sanders, Dawn; Scheffler, Linda; Laura Jones; mcoover@ensr.aecom.com; LaFranchise, Nicole

Cc: Bob Wyatt; Rick Applegate; MCCLINCY Matt; Keith Pine; Jim McKenna; Jason Kase; ANDERSON Jim M

Subject: RE: Tomorrow's Stormwater Technical Team Meeting

Karen –

Here are the notes from the call, which were sent to Chip and Eric yesterday.

Thanks.

Carl

Carl Stivers

Anchor Environmental, L.L.C.
23 South Wenatchee Avenue, Suite 120
Wenatchee, WA 98801
Phone: 509-888-2070
Fax: 509-888-2211

cstivers@anchorenv.com

This electronic message transmission contains information that is intended for the use of the individual or entity named above. If you are not the intended recipient, please be aware that any disclosure, copying distribution or use of the contents of this information is prohibited. If you have received this electronic transmission in error, please notify us by telephone at

From: TARNOW Karen E [<mailto:TARNOW.Karen@deq.state.or.us>]
Sent: Thursday, June 12, 2008 11:45 AM
To: Carl Stivers; Koch.Kristine@epamail.epa.gov; Andy Koulermos; Amanda Shellenberger; Amanda Spencer; Sanders, Dawn; Scheffler, Linda; Laura Jones; mcoover@ensr.aecom.com; LaFranchise, Nicole
Cc: Bob Wyatt; Rick Applegate; MCCLINCY Matt; Keith Pine; Jim McKenna; Jason Kase; TARNOW Karen E; ANDERSON Jim M
Subject: RE: Tomorrow's Stormwater Technical Team Meeting

Carl, Dawn and others

I was asked to get back to the group this week with any specific comments from DEQ on the following aspects of App. C:

- Land Use categories
- Delineation of drainage areas to each river segment
- Impervious Areas
- Unique Sites

Here are my comments on these topics plus a couple other comments.

We support the approach used to group land use categories and determine impervious areas.

As for delineating model segments and unique sites, I noted a few instances where there are discrepancies between the report's depiction of boundaries for model segments, unique sites or sampled subbasins and information DEQ has in hand. I paid most attention to non-LWG sites, assuming that LWG members will have or have had opportunity to review this information as it relates to them. The only discrepancy that will likely affect the City's GRID modeling effort comes from a drainage basin map recently submitted by NW Pipe. Their observations about drainage in the vicinity of their site may warrant a minor change in the model segment boundary near Burgard Rd in model segments 34 and 37. This map was circulated to the group a couple days ago and is also attached to this email.

At Cascade General, the depiction of the subbasin that LWG sampled does not seem to coincide with Cascade General's understanding of the area that drains to WR-161 (see attached map). While this discrepancy should not have any effect on GRID or hybrid modeling efforts, the LWG may want to consider revising their map to correct this.

I also attached a drainage basin map from GE that provides boundaries for the two drainage subbasins on that site, and the most recent submittal from Sulzer on their understanding of the drainage basin boundaries at their site. I have not examined the Sulzer map to determine whether it is the same as the depiction of the subbasin boundary in the LWG report.

The report should explicitly state that tax lot boundaries are used to delineate boundaries of unique sites. I came to this understanding after discussing the NW Pipe map with Dawn. Apparently, NW Pipe observed overland flow during a rain event and identified areas where overland flow from an adjacent site runs on to their property. They included this area in the drainage basin map of their site. However, it seems reasonable to use tax lot boundaries for this modeling exercise since many sites will have areas where stormwater could run onsite or offsite, and our approach does not allow for this level of detailed field analysis.

There is no mention about how runoff from St John's Bridge, or the Fremont for that matter, will be handled. Please clarify this in the report.

That's it for Appendix C. Carl, please shoot me your notes from last week's meeting when you get them finalized. Thanks

Karen

-----Original Message-----

From: Carl Stivers [mailto:cstivers@anchorenv.com]

Sent: Friday, June 06, 2008 9:33 AM

To: Koch.Kristine@epamail.epa.gov; Andy Koulermos; Amanda Shellenberger; Amanda Spencer; Sanders, Dawn; Scheffler, Linda; Laura Jones; mcoover@ensr.aecom.com; LaFranchise, Nicole; TARNOW Karen E

Cc: Bob Wyatt; Rick Applegate; MCCLINCY Matt; Keith Pine; Jim McKenna; Jason Kase

Subject: RE: Tomorrow's Stormwater Technical Team Meeting

Stormwater Technical Team –

Per yesterday's meeting, it was agreed that we would set a placeholder meeting/call time in case we need to meet to finalize any issues on the stormwater loading methods. We said the meeting/call time would be three weeks out, and it could be either a call or meeting depending on the level of issues raised between now and then. Also, if there are no or minor issues, we may not need the meeting/call at all. Please email this group over the next two weeks as you complete your reviews and identify any issues which you think require discussion. I can then help coordinate the need for the call/meeting.

So, for placeholder meeting/call date in the week of I suggest one of the following times:

Morning of 23rd (Monday)

Morning of 25th (Wednesday)

Morning of 26th (Thursday)

Please let me know what times work best for you, and I will send a confirmation email back out noting the selected time.

Thanks.

Carl

Carl Stivers

Anchor Environmental, L.L.C.

23 South Wenatchee Avenue, Suite 120

Wenatchee, WA 98801

Phone: 509-888-2070

Fax: 509-888-2211

cstivers@anchorenv.com

This electronic message transmission contains information that is intended for the use of the individual or entity named above. If you are not the intended recipient, please be aware that any disclosure, copying distribution or use of the contents of this information is prohibited. If you have received this electronic transmission in error, please notify us by telephone at (206) 287-9130, or by electronic mail, cstivers@anchorenv.com.

To: "TARNOW Karen E" <TARNOW.Karen@deq.state.or.us>
Subject: FW: Notes from Stormwater Calc Methods mtg

Karen -

In the meeting, we got into some detailed statistical discussions, although I doubt that they had much impact on the evaluations. Still, I'm glad we reached the agreements that we did. I have only a couple of minor suggested revisions to the meeting notes.

This is probably more than you want to know, but I took out some detail in one of the statements even though it accurately summarized the discussion. I was pushing using the general ProUCL methods over picking a method such as using 1/2 DL. However, after the meeting, I ran some analyses, and found that ProUCL in fact uses 1/2 DL in determining outliers along with some other methods that probably aren't any better. So for outliers, I suppose 1/2 DL is fine. For comparing distributions, I think they should use the preferred methods of dealing with non-detects, such as Kaplan-Meier. I would summarize this as saying we should follow ProUCL guidance. And if this means using 1/2 DL for outliers, then that's fine.

I told Jim I didn't plan on looking at Appendix C. I don't think I'll have much more to add from now on.

- Mike

-----Original Message-----

From: TARNOW Karen E
Sent: Monday, June 16, 2008 9:21 AM
To: POULSEN Mike
Subject: Notes from Stormwater Calc Methods mtg

Thanks for your review!

Note - I have already provided comments on Appendix C (per Agreement #9 in notes)

-----Original Message-----

From: Carl Stivers [mailto:cstivers@anchorenv.com]
Sent: Thursday, June 12, 2008 12:54 PM
To: TARNOW Karen E; Koch.Kristine@epamail.epa.gov; Andy Koulermos; Amanda Shellenberger; Amanda Spencer; Sanders, Dawn; Scheffler, Linda; Laura Jones; mcoover@ensr.aecom.com; LaFranchise, Nicole
Cc: Bob Wyatt; Rick Applegate; MCCLINCY Matt; Keith Pine; Jim McKenna; Jason Kase; ANDERSON Jim M
Subject: RE: Tomorrow's Stormwater Technical Team Meeting

Karen –

Here are the notes from the call, which were sent to Chip and Eric yesterday.

Thanks.

Carl

Carl Stivers
Anchor Environmental, L.L.C.

23 South Wenatchee Avenue, Suite 120
Wenatchee, WA 98801
Phone: 509-888-2070
Fax: 509-888-2211

cstivers@anchorenv.com

This electronic message transmission contains information that is intended for the use of the individual or entity named above. If you are not the intended recipient, please be aware that any disclosure, copying distribution or use of the contents of this information is prohibited. If you have received this electronic transmission in error, please notify us by telephone at (206) 287-9130, or by electronic mail, cstivers@anchorenv.com.

From: TARNOW Karen E [mailto:TARNOW.Karen@deq.state.or.us]
Sent: Thursday, June 12, 2008 11:45 AM
To: Carl Stivers; Koch.Kristine@epamail.epa.gov; Andy Koulermos; Amanda Shellenberger; Amanda Spencer; Sanders, Dawn; Scheffler, Linda; Laura Jones; mcoover@ensr.aecom.com; LaFranchise, Nicole
Cc: Bob Wyatt; Rick Applegate; MCCLINCY Matt; Keith Pine; Jim McKenna; Jason Kase; TARNOW Karen E; ANDERSON Jim M
Subject: RE: Tomorrow's Stormwater Technical Team Meeting

Carl, Dawn and others

I was asked to get back to the group this week with any specific comments from DEQ on the following aspects of App. C:

- Land Use categories
- Delineation of drainage areas to each river segment
- Impervious Areas
- Unique Sites

Here are my comments on these topics plus a couple other comments.

We support the approach used to group land use categories and determine impervious areas.

As for delineating model segments and unique sites, I noted a few instances where there are discrepancies between the report's depiction of boundaries for model segments, unique sites or sampled subbasins and information DEQ has in hand. I paid most attention to non-LWG sites, assuming that LWG members will have or have had opportunity to review this information as it relates to them. The only discrepancy that will likely affect the City's GRID modeling effort comes from a drainage basin map recently submitted by NW Pipe. Their observations about drainage in the vicinity of their site may warrant a minor change in the model segment boundary near Burgard Rd in model segments 34 and 37. This map was circulated to the group a couple days ago and is also attached to this email.

At Cascade General, the depiction of the subbasin that LWG sampled does not seem to coincide with Cascade General's understanding of the area that drains to WR-161 (see attached map). While this discrepancy should not have any effect on GRID or hybrid modeling efforts, the LWG may want to consider revising their map to correct this.

I also attached a drainage basin map from GE that provides boundaries for the two drainage subbasins on that site, and the most recent submittal from Sulzer on their understanding of the drainage basin boundaries at their site. I have not examined the Sulzer map to determine whether it is the same as the depiction of the subbasin boundary in the LWG report.

The report should explicitly state that tax lot boundaries are used to delineate boundaries of unique sites. I came to this understanding after discussing the NW Pipe map with Dawn. Apparently, NW

Pipe observed overland flow during a rain event and identified areas where overland flow from an adjacent site runs on to their property. They included this area in the drainage basin map of their site. However, it seems reasonable to use tax lot boundaries for this modeling exercise since many sites will have areas where stormwater could run onsite or offsite, and our approach does not allow for this level of detailed field analysis.

There is no mention about how runoff from St John's Bridge, or the Fremont for that matter, will be handled. Please clarify this in the report.

That's it for Appendix C. Carl, please shoot me your notes from last week's meeting when you get them finalized. Thanks

Karen

-----Original Message-----

From: Carl Stivers [mailto:cstivers@anchorenv.com]

Sent: Friday, June 06, 2008 9:33 AM

To: Koch.Kristine@epamail.epa.gov; Andy Koulermos; Amanda Shellenberger; Amanda Spencer; Sanders, Dawn; Scheffler, Linda; Laura Jones; mcoover@ensr.aecom.com; LaFranchise, Nicole; TARNOW Karen E

Cc: Bob Wyatt; Rick Applegate; MCCLINCY Matt; Keith Pine; Jim McKenna; Jason Kase

Subject: RE: Tomorrow's Stormwater Technical Team Meeting

Stormwater Technical Team –

Per yesterday's meeting, it was agreed that we would set a placeholder meeting/call time in case we need to meet to finalize any issues on the stormwater loading methods. We said the meeting/call time would be three weeks out, and it could be either a call or meeting depending on the level of issues raised between now and then. Also, if there are no or minor issues, we may not need the meeting/call at all. Please email this group over the next two weeks as you complete your reviews and identify any issues which you think require discussion. I can then help coordinate the need for the call/meeting.

So, for placeholder meeting/call date in the week of I suggest one of the following times:

Morning of 23rd (Monday)

Morning of 25th (Wednesday)

Morning of 26th (Thursday)

Please let me know what times work best for you, and I will send a confirmation email back out noting the selected time.

Thanks.

Carl

Carl Stivers

Anchor Environmental, L.L.C.
23 South Wenatchee Avenue, Suite 120
Wenatchee, WA 98801
Phone: 509-888-2070
Fax: 509-888-2211

cstivers@anchorenv.com

This electronic message transmission contains information that is intended for the use of the individual or entity named above. If you are not the intended recipient, please be aware that any disclosure, copying distribution or use of the contents of this information is prohibited. If you have received this electronic transmission in error, please notify us by telephone at (206) 287-9130, or by electronic mail, cstivers@anchorenv.com.